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## Article

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# Improving Community Education on Fish Consumption Using Social Behavior Change Communication (SBCC)

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### ABSTRACT

**Purpose:** This study aims to uncover the behavioral segmentation variables that differentiate the problems relating to adoption barriers to fish in-home consumption, which can be used when designing an effective and efficient community education program.

**Design/methodology/approach:** The study uses an ethnographic approach with various data collection methods, including expert interviews and focus group discussions with both businesses and government institutions in the fisheries domain, direct observation of Gemarikan (Social Activities for promoting fish consumption) and in-depth interviews with program targets. The results of each method of data collection are discussed in this study.

**Findings:** The study provides evidence that a one-size-fits-all education program is not a solution as not all consumers need to be educated in the same way, by using the social behavior change communication (SBCC) framework to understand the program's effectiveness. The study focuses on behavior-based segmentation variables by grouping consumers according to a more homogeneous categorization in terms of problems or consumer needs. The results revealed two characteristic consumer variables that influence the likelihood of someone eating fish at home: (1) childhood experiences and (2) cooking skills. These two variables are linked to a previously discovered behavior-based variable: tier-based adoption barriers in the consumer journey. Using these three variables, an integrative typology of consumers was systematically created.

**Research limitations/implications:** The study provides a newly designed integrative typology of consumers that could be used to overcome adoption barriers to fish in-home consumption in various locations. Previous studies have focused on demographic variables, but the use of behavior-based segmentation as the basis of categorization is more relevant to resolve the issues.

**Originality/value:** With this integrative consumer typology, it will be easier for designers of fish consumption education campaigns to identify problems in the target segment and create more contextual activities. To avoid ineffectiveness and inefficiencies, educators need to ensure that resources in educational activities are not wasted by prioritizing the consumer segment that is most open to adopting fish in-home consumption and by postponing programs towards the segment that is least open to doing so.

*Keywords: social behavior change communication, fish consumption, adoption barriers, behavioral segmentation*

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## I. Introduction

Indonesia is a country with the second largest fish catch and cultivation in the world. The Food and Agricultural Organization (2016) states that Indonesia's total fish production reaches 23.2 million tons per year. However, only about 20% of Indonesia's fishery production potential has been utilized (Ministry of Marine Affairs and Fisheries Republic of Indonesia, 2017a). Unfortunately, as a country that is classified as the highest fish producer in the world, Indonesia's fish consumption status (54.5 kg/capita/year) is still relatively low. This figure is even lower than neighboring countries, such as Malaysia (70 kg/capita/year) and Singapore (80kg/capita/year) (Widria, 2019). Therefore, the government needs to optimize the level of fish consumption, not only to stimulate the fisheries sector but also to improve the nutrition and intelligence of Indonesian children (Al-Lawi et al., 2019).

With the growing strategic role of fisheries in Indonesia, consumer education activities supported by the government to increase fish consumption have become increasingly central. To deal with fish consumption barriers in Indonesia, the government has promoted a campaign called “Gemarikan” (Social Activities for promoting fish consumption). This movement is a form of communication education for the community as a stimulus to become accustomed to including fish in the daily menu at home (Ministry of Marine Affairs and Fisheries Republic of Indonesia, 2017b).

The Gemarikan activity as a social behavior change communication (SBCC) program has actually been implemented by the government for years. Unfortunately, the selection of types of educational activities is still more top-down from the central government to the regional executors, and the types of activities are still generic, or one size-fits-all (Rudianto, 2017). Examples are outreach activities on the benefits of eating fish, such as cooking competitions and creating fish-based recipes, demonstration activities for fish cooking techniques, and many others, published both in the mass media and social media, and promoted through events that are a form of direct interaction.

This fish consumption education activity seems to have been successful, considering the increase in fish consumption of around 3% per year per capita. However, there is still a national disparity in fish consumption in that the provision and fulfillment of community nutrition from fish ingredients is not evenly distributed (Arief, 2020). This extra consumption is also not commensurate with the efforts and costs that have been incurred by the government. The level of fish consumption should be even higher and more evenly distributed. In addition, fish meat is still inferior to chicken meat as the main preference for animal protein sources (Statistics Indonesia, 2020). However, the omega-3 content in fish is essential for the development of brain tissue and can improve public health (Cohen et al., 2005; Pase et al., 2015).

Despite their efforts in implementing the Gemarikan program, a significant target audience still fails to link the educational program to their own adoption problems and numerous barriers to consumption remain. This was evidenced by Maulana et al. (2019), who found that many audiences of Gemarikan activities still express the idea that *'it's complicated'* in adopting fish consumption at home. The study identified a seven tier-based adoption barrier to in-home fish consumption, where problems found between points of interaction were interrelated. Therefore, because the problem of behavior change is very complex, consumer mapping is difficult to solve by understanding only one dimension of consumer classification.

This study aims to uncover the behavioral segmentation variables that differentiate the problems of adoption barriers to fish in-home consumption to be used when designing an effective and efficient community education program. By doing this, the goal is to capture the homogeneity of each fish consumption issue in each consumer market segment. The grouping of consumers with the same issues will enable change agents to design a more contextual SBCC program in order to increase the effectiveness and efficiency of the campaign.

## II. Literature Review

The main challenge in the field of fisheries science and management is the development and determination of the application of classification systems, both biologically and socially, that can be used by researchers and policy makers (Connelly et al., 2001). The use of an appropriate classification can help in explaining community fish consumption behavior and can even be used to monitor the program being implemented (Labrosse et al., 2006). Furthermore, classification can be used to differentiate fishery products and match the demand and supply of fish products in the community (Holland & Ditton, 1992).

The results of the literature search highlighted eight types of classifications around fish based on 1) the type of water in which they live, namely sea water, fresh water, and brackish water (Kordi, 2010; Maidika et al., 2016); 2) the freshness format, namely, fresh fish or processed fish (Agustini & Swastawati, 2003), or the shape format, namely, whole fish or fillets (Goossens et al., 2020) ; 3) price perceptions, starting from the cheapest (economical) to the most expensive (premium), although this perception is also formed from the consumer experience itself (Garcia & Rosenberg, 2010); 4) consumption points, namely in-home consumption and out-of-home consumption (Lorenz & Langen, 2018; Pérez-Cueto et al., 2011; Zandstra et al., 2000); 5) the affordability of the location to buy fish, namely affordable and unaffordable access (Hurst, 1973; Labrosse et al., 2006); 6) geographical factors that divide the fishery product market into two types: domestic and global markets (Bronnmann et al., 2020; Food and Agriculture Organization, 2008); 7) the two types of fish business models, namely B2C (Business-to-Customer) and B2B (Business-to-Business) (Food and Agriculture Organization, 2002; Indahsari & Farid, 2020); and 8) the fish typology based on marketing and distribution channels, namely, starting from offline, online, and omnichannel channels (Vodenicharova, 2020).

### A. Social behavior change communication (SBCC)

SBCC refers to the strategic use of communication to promote positive health outcomes, which is based on proven theories and models of behavior change (The Manoff Group, 2012). An education program is one of the many recommended forms of communication to achieve behavioral change.

The theory of planned behavior (TPB) is the theoretical basis of SBCC. TPB focuses on the big picture that teaching and providing information about the advantages of fish alone are not enough to be able to change behavior. There are many factors that influence behavioral intention. More fully, TPB includes several aspects that influence the formation of attitudes, namely perceived value, subjective norms, and perceived behavioral control. Attitude itself has a direct relationship with behavioral intention. Perceived value in many ways is a dimensional variable that is contextual to the product or consumer being studied. When consumers do not have sufficient understanding of the benefits that they can perceive (lack of knowledge), then the attitude towards the product tends to be negative and this becomes an obstacle for the intention to buy or consume. Sometimes, at the point where the knowledge benefit of consuming is high and a positive attitude has been formed, but the behavioral intention is still low, it is necessary to identify what other barriers prevent consumers from fulfilling their desires.

The relationship between knowledge, attitude, and intention is central to TPB (Ajzen, 1991). This theory has been widely used, especially in the area of food and health-related consumer behavior. Some examples of application are the prediction of organic food consumption behavior (Al-Swidi et al., 2014; Johe & Bhullar, 2016), the acceptance of green marketing (Kalafatis et al., 1999; Paul et al., 2016), and food consumption research (Kothe & Mullan, 2014; Rasmussen et al., 2006) in relation to various other health-related foods. Especially for fish consumption studies, TPB has also been frequently implemented to predict the intention behind in-home consumption; this is evident from the many past studies that have used this theory, for

example, fish consumption in Indonesia (Arthathiani & Zulham, 2019), fish consumption in Vietnam (Tuu et al., 2008), fresh fish consumption in Croatia (Tomić et al., 2016), and fish consumption in Belgium and Spain (Brunsø et al., 2009).

Many behavioral changes are temporary and do not last long. This phenomenon should be avoided in behavior change activities. Indeed, the design of education and communication programs for fish consumption must take into account that behavior change should not only be temporary but also sustainable. The framework for a behavior change communication program stresses the importance of practicing sustained behavior change by identifying early behavior. It also involves three enabling factors: (1) effective communication, (2) enabling environment, and (3) user-friendly, accessible services and commodities. One application of this framework is to ensure the product to be consumed is available or easily accessible when consumers are ready to change. The selection of channels for educational activities cannot be done generically, but it is necessary to consider the context of the consumer situation and the enabling factors.

As recommended by the SBCC framework, organizing communication education activities needs to employ a systematic process beginning with formative research and behavior analysis, and followed by communication planning, implementation, and monitoring and evaluation (McKee et al., 2014). Understanding this SBCC process can help designers and implementers of fish education activities to achieve their goals (The Manoff Group, 2012). Here the gap that arises is the lack of good preparation in the design of communication education programs. The understanding of adoption barriers within the targeted segment has not yet become a driver for the design of which types of communication education programs are suitable. As a result, after completing the activity, the evaluation process to assess the success of behavioral change becomes difficult because initial data on specific consumer problem situations are not available.

## B. Behavioral segmentation

Although there has been much discussion about the importance of using behavioral aspects, there are many researchers and marketers who still implement grouping based on demographics and psychographics. For example, research on organic food adoption (Thorsdottir et al., 2012) was based on ethnicity, age, income, and education level (Tan et al., 2015). Segmentation based on demographics and psychographics is considered ineffective because the basis of the grouping is more about 'who they are', but not 'what they do or think' (Urbancokova et al., 2020).

Behavioral segmentation refers to the grouping of the total consumers in a market into homogeneous groups based on their mutual buying behavior patterns or problems. Behavioral variables that are commonly found include benefit sought, frequency of purchase or consumption, purchasing habit, customer journey stage, user status, attitude toward product or service, etc. (Goyat, 2011; Kimiloğlu et al., 2010; Lemon & Verhoef, 2016). There are several advantages to grouping customers based on behavior, one of which is that the campaign program becomes more customized. Understanding groups that have the same needs or problems means that more relevant solutions can be offered for them.

Past research that has explained the behavioral segmentation aspect has focused on the seven tier-based adoption barriers to fish consumption in Indonesia (Maulana et al., 2019). The general theme in this study is that consumer complaints are expressed in the term 'it's complicated', which describes the blocking attitude towards the desire to include fish as a menu in their homes for their families. These findings integrate those of previous studies on various inhibiting factors which had been investigated separately. For example, the problem of the lack of knowledge about the health benefits of fish is discussed by Olsen (2004), while fish access/supply issues were raised in the research of Alemu and Adesina (2016) and Trondsen et al. (2003). Quality and handling problems in relation to fish were addressed by Birch and Lawley (2014) and Brunsø et al. (2009). Altintzoglou et al. (2011) discussed the

complications of fish consumption for housewives, which also include the challenge of convincing children to consume fish.

The uniqueness of the research by Maulana et al. (2019) is the discovery of the existence of different levels of barriers in relation to in-home fish consumption which are interrelated with each other. Solving problems at one level is not enough. In fact, if the obstacles at the previous level have not been resolved, they will continue to block attitude and intention. However, in order to allow for a sharper targeting of consumers for campaign purposes, we need more behavior-based segmentation variables. Moreover, that particular study did not further discuss what type of education and promotional program is suitable for each segment. The present study contributes to this body of research by investigating that gap.

### C. Hierarchy of effect in communication

In line with the hierarchy of effects in communication, marketing campaign activities are divided into two types: image building and brand activation (Baker, 2003). The readiness of consumers in the hierarchy of effect, which is described as awareness, knowledge, preference, and trial, affects what type of communication activity is more appropriate to achieve communication goals. The integrative typology of targeted consumer that will be arranged systematically will contain elements of image building and activation.

Activities that promote image building include increasing knowledge about the advantages of the products offered. Currently, in Indonesia, there are still many people who do not understand the high nutritional value of fish, namely the presence of omega 3 for brain intelligence. In addition, once they have acquired more knowledge about fish, preferences still need to be built because they continue to have choices of other protein sources, namely poultry and beef in their daily lives.

Brand activation is directed at consumer groups who are aware and knowledgeable, but do not yet have access to purchase or have not been given enough

incentives to immediately move to buy or consume. Activities such as sampling fish products at various events, cooking competitions or competitions to make recipes from fish-based ingredients, are a choice of activities aiming to activate a trigger that has been stored in the prospect's mind.

In accordance with the SBCC approach, after obtaining clarity on relevant variables and insights regarding the characteristics of each segment and their problems, a typology of fish consumption communication education activities in each segment can be explained based on the objectives to be achieved. This will make it easier for designers of fish consumption education campaigns to harmonize the problems in the targeted segment with the typology of educational programs that are systematically arranged in this paper. Although the campaign is expected to increase fish consumption and contribute to health enhancement, it could also waste the government budget without sufficient resource management.

## III. Methodology

This study used ethnographic methods because there is information that cannot be revealed through interviews only in the context of the adoption barrier problem. Researchers need to have a direct consumer experience, recorded through observation in real settings (Kelly & Gibbons, 2008). Barriers are often not visible on the surface, so a sharper tool is needed to dig up the root cause. The urban community was chosen because, at the fish distribution level, facilities and infrastructure have been optimally supported so that the remaining homework is at the consumption level.

Field data collection began with expert interviews with four people from the fisheries and marketing industry association, two people from SMART-Fish Indonesia, a non-profit organization engaged in fisheries, and two people from the Ministry of Maritime Affairs and Fisheries of the Republic of Indonesia. Focus group discussions were also held among stakeholders

in the Indonesian fisheries sector. Participants who attended this group discussion consisted of 25 key persons consists of marketing communication experts, staff and officials from the Ministry of Marine Affairs and Fisheries, and the industry association administrators. During the discussion, the issue of fish consumption adoption was raised, as well as the triggers and barriers, while including a reflection on which educational programs have been considered effective so far and which programs need to be evaluated and modified.

The next stage was directly attending the events of the Gemarikan campaign, namely fish festival activities, bazaar activities, promotional activities at food exhibitions, cooking demo activities, school sampling activities, and competitions to create fish-based recipes. In addition, various advertisements in mass media and social media were collected to be used as material for researchers to study before going into the field and dealing with stakeholders related to Gemarikan.

Then, the research continued by talking directly to consumers and participating in exploring their problems. It is important to be able to listen directly to consumers and capture their expressions by visiting them in their daily lives. The research started with semi-structured interviews and, at the start of each interview, loosely structured, open-ended questions were asked. After that, in the final stage, in-depth interviews were held with consumers to explore and validate in more detail the insights that emerged in previous field research. The research was conducted in several large cities in Indonesia, namely Jakarta, Bandung, Lampung, Cirebon and Solo. In total, 50 housewives participated as respondents with an age range of 30-50 years who have school-age children. They were selected from those who had adopted fish consumption for their daily lives at home and those who had not done so.

The question topics explored why respondents' families rarely (or often) eat fish, family background, childhood background, fish advertisements they have watched, events they have visited, among others. In addition, their opinions about the Gemarikan campaign activities were assessed, both those that addressed image building in mass and social media as well as

activation, namely cooking competition events, bazaars, expos, etc., where they were present as participants.

The data collection process included the recording of the findings at each stage of the study and the extraction of results from the discussions of each stakeholder. Each finding was arranged in a separate table which was re-discussed at the next research stage. Sometimes a topic which had not been not discussed previously emerged in the next discussion, which improved the results. Thus, the process of collecting insights became more thorough through a process of iteration and triangulation. The extraction of insights was carried out by researchers who are senior ethnographers and have a long experience in the field of qualitative research.

#### IV. Results

The results of the field studies in the cities of Lampung and Cirebon, which are known as fish producers, showed that their people tend to be accustomed to fish menus, both for consumption at home and outside the home. The habit of eating fish has been passed down from generation to generation. Even though the local people have migrated and no longer live in their hometowns, fish as an ingredient for consumption is still a tradition. A similar story was also recounted by a respondent who lives in Jakarta but is from Makassar, a coastal city that produces fish. She stated that fish is the main menu and that every family member likes fish-based dishes. Making fish as the family's daily diet is a habit that has been planted and built on across generations of children and grandchildren so that this tradition has been maintained.

The interesting finding from the observations at the homes of families who like fish menus is that there are piles of various types of frozen fish, both whole fish and fillets, in the freezer. In addition to keeping fish in the freezer, respondents also store and prepare fresh fish to be cooked that day.

*"For our family, eating fish is like an obligation. Sometimes on Saturday or Sunday we specifically go to the fish market so we can get good and fresh fish. We buy a lot of them for a week." (Housewife Response, Jakarta from Makassar).*

Further observations indicated that people who have expertise in cooking as a hobby appear to have more complete cooking utensils in their kitchens than respondents who do not cook as a hobby. In addition, they have a wide collection of recipe books, ranging from simple menus to complex ones. Respondents who like to cook tend to explore a variety of new cuisine menus. They admit that, although cooking fish tends to be more difficult than other sources of animal protein, they have the skills to learn it quickly. Complications of the process of cleaning fresh fish and determining recipes do not discourage them from trying to process fish-based dishes.

Furthermore, interviews were also conducted with several housewives who live in cities with low levels of fish consumption, one of which is Solo. Several respondents explained that their families rarely eat fish and prefer other sources of animal protein that are easier to process, such as beef and chicken. They also feel that cooking fish is 'complicated' so it does not need to be done, especially among those who do not have expertise or passion for cooking. Finally, they do not know about the various choices of fish recipe menus that can actually be prepared practically and simply. Their childhood life experiences in which they were not accustomed to eating fish by their parents contributed to their current attitudes. They similarly did not accustom their own children to eating fish.

*"Personally, I don't really like cooking. The one who often cooks is my household assistant and rarely chooses fish because the family doesn't like it. The reason for that, I'm not used to eating fish in the past, so I feel that fish is not a mandatory menu. Besides, there are many other protein sources that are tastier and easier to cook." (Housewife Response, Solo)*

From the stories that emerged from the field research, it can be concluded that there are two aspects of behavior-

based segmentation related to the difficulties among housewives in adopting fish menus at home. These two aspects are related to fish consumption in childhood and past experiences (rarely vs. eating fish often) and to cooking as a hobby (likes to cook vs does not like to cook). We divided the consumer segments into four groups based on the two behavioral variables found in this study: frequency of fish consumption since childhood and cooking skills. Each consumer segment group has homogeneous problems in adopting fish in-home consumption (See Figure 1).

		Fish Consumption Frequency Since Childhood	
		Low	High
Cooking Skill	Low	<b>Segment 1</b> <i>Rarely Eat Fish Since Childhood and Low Cooking Skills</i>	<b>Segment 2</b> <i>Frequently Eat Fish Since Childhood but Low Cooking Skills</i>
	High	<b>Segment 3</b> <i>Rarely Eat Fish Since Childhood but High Cooking Skills</i>	<b>Segment 4</b> <i>Frequently Eat Fish Since Childhood and High Cooking Skills</i>

**Figure 1.** Four types of in-home fish consumption: consumer segmentation

Studies on fish consumption by Curtis et al. (2012) and Thorsdottir et al. (2012) found that the cooking skill variable also appears as a significant behavioral segmentation. However, in the current study, we found that cooking skills are the supporting variable, while the key factor that influences the willingness to eat fish at home is the frequency of eating fish since childhood. This means that if someone is not accustomed to eating fish since childhood, her cooking skills may not have much effect.

#### **Consumer Segment 1: Rarely Eat Fish Since Childhood and Low Cooking Skills (S1)**

This consumer segment is the group that tends to be the most difficult in terms of changing their behavior is because the behavior change is faced with two challenges: not being used to eating fish since childhood and not being willing to change. It would take a long time for them to change and they would

have to be given very strong reasons for them to agree to change. Low cooking skill is a challenge in itself because the process of cooking fish is not simple.

The expression 'it's complicated' conveyed by this consumer group always appeared consistently in the fieldwork, both from the unstructured interviews during observation and the in-depth interviews. In line with the research of Maulana et al. (2019), which explains the seven meanings of 'it's complicated' stemming from the reluctance of consumers to adopt fish, this group has the highest adoption barrier. As a determining factor of the family menu, they rarely eat fish because of their childhood experience that privileged protein sources other than fish.

The problem of past experiences is compounded by a condition in which someone does not like cooking. Housewives with this view see that the decision to include fish in their daily menus has broad implications, starting from providing fresh fish to the associated handling and cooking difficulties. They are used to buying food from outside, or dishes that are very easy to prepare and do not require a lot of spices. According to them, if there are ready-made dishes (bought outside), then cooking is a time-consuming job. They also do not spend much on buying ingredients, so they will prefer to buy cooked, ready-to-eat foods. Especially in the city of Solo, this is known as "matengan" (cooked food), while in other cities such as Bandung it is commonly referred to as "rencang sangu" (the friend of rice)

*"Well, why should I cook? maybe I'll cook for Eid festive, or if there's a big event, if I am not lazy. Just buy ready-made food, we just buy it at the shop. There are also ready-made fish dishes, if we want. It's complicated to cook fish, it's more practical to just buy it at the shop."* (Housewife Response, Solo)

#### **Consumer Segment 2: Frequently Eat Fish Since Childhood but Low Cooking Skills (S2)**

This group is more easily influenced in relation to fish consumption than the first segment. They have been accustomed to eating fish since childhood, but

because their cooking skills are not good enough, the fish menu is being increasingly abandoned. Recalling the importance of fish to the family is relatively easy because they have past experiences upon which to rely.

Basically, housewives in this segment have enjoyed eating fish since childhood because it was a menu item for their families who lived in coastal areas. However, now that they are married and no longer live in their birth area, they have begun to experience problems when they have to cook for themselves as they have not inherited cooking skills. Yet on out-of-home occasions, for example at a restaurant or at a party, they tend to choose the fish menu. The meaning of 'it's complicated' for this segment is more related to the process of selecting and cleaning fresh fish, cooking preparation, and knowing how to cook fish that is easy but still delicious. Some of the respondents who fall into this segment are young mothers belonging to the millennial age group. They are a generation that rarely enters the kitchen, or if they have to cook, they tend to prepare a quick menu that is liked by the family.

*"Actually, since I was little, I really liked fish. My mother used to cook me fish. But I never learned how to cook it, so I don't have any skills, and I'm a bit lazy, I just want to eat it. What's more, the quality of fish in Jakarta is different from that in my hometown. Yes, I prefer to fry chicken only for children, also occasionally buy cooked fish if we want."* (Housewife Response, Jakarta)

#### **Consumer Segment 3: Rarely Eat Fish Since Childhood, High Cooking Skills (S3)**

In contrast to segment 2, the specialty of this consumer group is their skill and passion for cooking. However, during childhood they rarely ate fish menus and their families were also not used to fish dishes. This group is more difficult to influence and ask to adopt fish consumption at home than segment 2. This would require external influence, for example, requests from family members. The school sampling campaign, which targets children, is one that can be expected to have an impact on this group.

Even though the housewives in this group are diligent

in cooking, they only cook selected menus that they like. Both simple and complicated menus are common, but the main ingredients they use are the key. The protein sources are mostly from poultry and beef, rather than fish. Because fish is not a food that is often consumed by the housewives, it is rarely an option.

From the results of the observations and interviews, the participants stated that when they were introduced to new cooking techniques or new menus, they did not hesitate to try them. The term 'it's complicated' in this group is more of a barrier to finding a fish supply, and then influencing family members to eat the fish menu that will be served. If education and promotion can be focused on the health benefits of eating fish, the problems that arise due to the cooking process for this group are less of a focus. For them, it is more important to have ideas for fish dishes. Because they like to cook, they are able to be creative so that the presentation of the fish menu in the family becomes varied.

*"My mother is a native Betawinese, who enjoys cooking, but hardly cook fish. I was taught to cook menus with lots of spices, for example the popular Betawi chicken dishes. Yes, I really like cooking it. But when it comes to cooking fish, I've rarely been taught since I was little, and I didn't even consider fish menus, no one likes it at home either." (Housewife Response, Jakarta)*

#### **Consumer Segment 4: Frequently Eats Fish Since Childhood, High Cooking Skills (S4)**

This group includes people who are used to eating fish because it was a daily menu item when they were children, which was passed down by family habits. Besides liking fish dishes, they are also good at cooking. Because of their love for fish, they often cook fish for their young. When children refuse to eat fish, they have a solution to persuade them to eat.

In this area in general, the term expressed as 'it's complicated' is limited to access and availability of high-quality fresh fish. For other aspects, they reported no issues. They already understand the advantages of fish for health and there is no problem in the selection of fresh fish because they are used to having a fish

menu at home.

In this study, groups representing this segment were found in coastal areas, namely Lampung and Cirebon, as high fish producers. Especially in the capital city of Jakarta, this segment is quite numerous, specifically people from the Makassar and Gorontalo areas, which are also famous as fish-eating areas. If this group can be embraced, it will become an agent of change that will help influence communities that have not yet adopted fish at home.

*"Because I'm a 'Gorontalo' person, I usually eat fish, so I automatically cook fish. Previously, my husband, who is Javanese, didn't like fish because it had a lot of thorns. But now when I cook fish, he enjoys it because I cooked it with pressure cooker it so that the spines are soft. So now when I cook any kind of fish, I definitely press it so it's easy to eat and people like it." (Housewife Response, Jakarta from Gorontalo)*

### **A. Review of current education program**

From the results of the serial focus group discussions and interviews with fisheries and communication experts, there were several aspects of the Gemarikan activities that were both criticized and praised. Praise was given for the many events that received a positive response from the community and are eagerly awaited every year, while several activities or programs were criticized as not effective and efficient.

#### *1. Review of cooking demo activities*

This activity received praise from fisheries and communication experts because it immediately solved the lack of cooking idea problem. Participants who attended these events were generally selected because they liked cooking. This activity is considered to have succeeded in providing benefits because it is interactive and directly shows cooking techniques presented by skilled chefs. It is hoped that after experiencing this activity, cooking demonstration participants can practice them at home. Thus, the consumption of fish at home will increase.

## 2. Review of image building activities: Benefits of eating fish

There are several types of knowledge building activities that were considered effective, while some were considered ineffective by marketing communication experts. Campaigns focusing on public relations through television and social media by using figures as endorsers of eating fish were considered as activities that achieve targets. However, educational materials consisting of general messages about eating fish and without endorsers were not packaged and visualized properly. Even though the message was clearly communicated, the targeted audience still did not get the message because it lacks appeal and allure. One of the reasons for this shortcoming was the lack of involvement of professional creative agencies. As a result, the effectiveness of educational activities for promoting the benefits of eating fish was not optimal. Some respondents only remembered advertisements with endorsers they knew, but not remembered other general advertisements.

*"I recall the advertisements portraying the president or the minister talking about the urgency of eating fish. I like their attractive style. It worked well and it influenced us to follow their advice." (Housewife Response, Lampung).*

## 3. Review of activation programs

The most popular events according to study participants were: (1) competitions to create all-fish recipe menus, (2) free fish eating at expos and bazaars, and (3) fish eating and fun activities at children's schools. Although it was said that the events were fun and engaging, some marketing communication experts questioned the effectiveness of these programs. They were doubtful that the housewives who attended the event would have a high intention to cook fish menus for their families at home.

The competition to create recipes from all-fish ingredients was indeed interesting because the prizes were also quite tempting. Although this event was attended by many participants on the regional level who then competed at the national level, consumers

claimed that the impact of the event was minimum. They only collected winning recipes, but they did not apply them in their daily menus because they were too fancy and it is hard to find the ingredients.

*"The recipe is for chefs who are good at cooking, because this is not easy to imitate. Even if you want to find fish that is written in the recipe, you can't even get it. It doesn't exist in my area; it only exists in certain places. I really like the recipe collection, but it doesn't change my way of cooking fish." (Consumer response about all-fish recipe competition, Jakarta).*

## B. Integrative consumer typology

At present, according to the experts, Gemarikan educational activities have been created on a one-size-fits-all basis. One of the suggestions proposed by communication experts was to prepare contextual activities based on the issues faced by the homogenous segments in order to make the campaign more effective and efficient. Their advice was to make an integrative typology, which will be useful as a reference for organizers of Gemarikan or similar activities so that they have a clear foundation for the choice and design of educational program types. This is in line with the recommendations from the SBCC framework, namely segment determination, problem identification, and activity objectives, so that the activity can be evaluated properly after implementation.

The typology of recommended educational activities is summarized in full in Table 1. The table comprehensively describes the relationship between the selection of the type of educational activity associated with consumers' critical points in the fish consumption journey and the problems faced based on the frequency of eating fish in the past and their cooking skills. The table describes the context which must be considered first before designing fish consumption education activities such as Gemarikan. Not all consumers should be educated in the same way. For example, for a group that frequently eats fish and is skillful in cooking, it is likely that this group does not need to be educated

**Table 1.** Integrative Consumer Typology for Overcoming Barriers to Fish Consumption

Problem	Segment	Interaction Point	General Objectives	Specific Objectives	Recommended Channel
Lack of understanding about the benefits of fish	S1 and S2	<i>Tier 1:</i> When thinking about the daily menu	Image building	Understand the benefits of Omega-3 for intelligence and high-quality protein in fish for growth	Advertising in mass media and social media
Lack of information regarding fish availability	S1 and S2	<i>Tier 2:</i> Shopping for fish at a vegetable seller	Image building	Awareness of outlet options: offline or online	Advertising in mass media and social media
Lack of knowledge to distinguish the freshness of fish	S2, S3 and S4	<i>Tier 3:</i> When shopping at the market	Activation	Training: Become an expert in fresh fish selection	Demo at live events or via YouTube videos and other social media
Lack of knowledge in maintaining fish quality	S2 and S4	<i>Tier 4:</i> Keep the fish quality when returning home after shopping	Activation	Awareness and understanding with examples of the principle of perishable food	Demo at live events or via YouTube videos and other social media
Lack of awareness of fish fillets and lack of skills in cooking fish	S2 and S4	<i>Tier 5:</i> Preparing to cook fish in the kitchen	Activation	Be aware that there are choices of fillets and other processed fish that are equally nutritious. Training on how to cook with the right technique	Demo at live events or via YouTube videos and other social media
Lack of knowledge about fish recipes	S2 and S4	<i>Tier 6:</i> Choosing a recipe and cooking fish	Image building & Activation	Provide a collection of fish-based recipes that are easy to imitate	Recipe creation competitions at events and social media including YouTube videos
Lack of skills in serving fish with an attractive appearance and persuading the family to eat fish	S1, S2, S3 and S4	<i>Tier 7:</i> Serving fish at the dinner table and persuading the family to eat	Image building & Activation	Provide ideas for attractive presentations, along with effective ways to persuade families, especially children, to want and like the fish dishes served	Sampling in schools and publication on social media

about the benefits of fish anymore. They need to be educated on how to handle fish and maintain fish quality. On the other hand, for those who rarely eat fish and have low cooking skills, the challenge is to choose an educational typology that fits the problem at hand. They need educational support about the availability of fish, as well as tactics to present fish menus more artistically and not boringly and, of course, education on how to persuade family members who refuse to eat fish.

#### *1. Lack of understanding about the benefits of fish*

This education initiative aims to make certain segments aware of the benefits of fish, namely that fish is good for intelligence and health of children

and other family members who consume it. This type of education is more about image building. As has been done previously, this form of education will be driven through mass media and also social media. Following the rules of the SBCC framework, only groups that need it will be targeted. However, mass media is a medium that can be too broad in scope. Media that is more appropriate for fish knowledge education programs only reaches groups who do not understand the benefits of fish. With reference to brand activation activities, such as cooking demos and others, they also need to be more segmented so that there is no waste of activity costs. The selected activities should be attended mainly by people who are not familiar with the benefits of fish. This type of education is aimed at the consumer segment

characterized by childhood experience in which fish was rarely eaten because these people do not yet have an inner awareness of why fish is important for their families.

## *2. Lack of information regarding fish availability*

Education about where to buy fish can help open the perspectives of consumers because there are many different types of fish of good quality that can certainly be an option. Consumers may also be still fixated on only one type of fish, so that if one type of fish is damaged or not worth buying, the consumer does not try to find other fish alternatives. The target of image building activities and brand activation activities must be the groups that do have limited information about where to buy fresh fish and access problems. These groups have difficulty finding the main ingredients for cooking. Activities recommended for groups who have problems obtaining location information can be directed through mass media and social media to target consumers who have been identified in advance. This type of education is aimed at the less skilled consumer segment whose experience of shopping for fresh fish is still relatively limited.

## *3. Lack of knowledge to distinguish freshness of fish*

The third educational activity involves how to choose the right fish. This problem often occurs among housewives and other consumers, specifically that it is still difficult to choose fish that are suitable for consumption. At present, there are many information about how to choose fresh fish, educational pictures that explain tips and tricks for selecting fresh fish and even using an endorser will help to spread the message through social media. The output of this type of education is that consumers can find out how to choose fresh and good quality fish. The communication can be in the form of demos at events or platforms such as YouTube, as well as infographics containing information that can be posted on social media. Meanwhile, for activities that directly interact with the target audience, what is practical is to conduct education in the fish shopping location markets. This

type of education is aimed at the less skilled consumer segment, whose experience of shopping for fresh fish is still relatively limited.

## *4. Lack of knowledge in maintaining fish quality*

In this case, consumers need to be provided with information about how to handle fish properly so that the quality can be maintained until they get home before processing and cooking. For example, consumers must ask traders for ice cubes to put together with fish in a shopping bag. In addition, consumers should also be told to go straight home when buying fish and to immediately store it properly in the refrigerator before cooking so that the quality does not continue to deteriorate.

The activation of this type of education can be in the form of explanations and demos conducted at events or through media such as YouTube. The output of this type of education is that consumers can better understand how to handle and maintain fish quality on the way from the market or supermarket to their homes. This type of education is aimed at the consumer segment who often eats fish and is not an expert in cooking. Even though they often eat fish, this is not necessarily accompanied by good knowledge of handling fish on the way home.

## *5. Lack of awareness of fish fillets and lack of skills in cooking fish*

Information about the benefits and advantages of fish fillets needs to be provided to consumers. The practicality of fish fillets should be highlighted because they can be a solution to avoid the need to clean and process fish. In fact, even consumers who do not have high cooking skills can cook fish fillets because they are more practical. In addition, consumers also need to have an understanding of the nutritional content of the fillet to clarify the misconception that the quality of the fillet is not as high as the whole fish.

Furthermore, consumers can also be introduced and taught fish cooking techniques so that they become more aware of how to cook fish properly and correctly. For consumers with low cooking skills, this can lead

to improvement. The expected output of this type of education is that consumers can find out if there are alternatives for overcoming the difficulty of processing and cooking fish, namely fish fillets without bones. In addition, they also become more skilled in cooking fish by being taught good and correct techniques. The activation of this type of education can be in the form of explanations and demos at offline events that are attended directly by target consumers or online on the YouTube platform.

#### 6. *Lack of knowledge about fish recipes*

The organizers of educational activities can introduce variations of recipes made from fish to target consumers so that they know more about fish menu choices. The variety of recipes given can be in the form of types of dishes that are easy to practice so that consumers with low cooking skills can still apply them at home. A higher difficulty level similar to professional cooking can be practiced by consumers with already high cooking skills.

The expected output from this type of education is that consumers no longer feel confused about how to serve fish dishes to their families at home because they have become more aware of variations and choices of recipes that can be practiced, and also enjoyed by their families. This type of educational activity can be in the form of image building and activation, such as competitions to create recipes from fish-based ingredients on social media, as well as during direct event activities to practice the recipes that have been created.

#### 7. *Lack of skills in serving fish with an attractive appearance and persuading the family to eat fish*

For the segment of consumers who rarely eat fish, an attractive appearance will certainly make them and their families more willing to eat fish. For those who often eat fish, an attractive appearance can also be applied to a mainstay menu and a family favorite so that they prioritize fish over other protein sources. For consumers with low cooking skills, it will certainly increase their skills in serving fish. For those who are more advanced, it will add variations to the appearance

and result in a more interesting dish. The expected output of this type of education is to overcome difficulties in persuading family members at home, especially children, to eat fish. The recommended activities include advertising and communication on social media for image building. Another direct activity is to go to children's schools or order to allow them to sample fish dishes and, at the same time, provide them with a fun experience about fish cooking.

## V. Conclusion

Many government policies, activities, and programs involving SBCC have been carried out in an attempt to increase fish consumption. However, by conducting one-size-fits-all activities without paying attention to contextual adoption barriers, various Gemarikan activities have been ineffective and inefficient.

This study provides an overview of consumer segmentation from a behavior-based perspective so that adoption issues can be better resolved. The segmentation formulated in this study provides contextual references for Gemarikan organizers (or equivalent activities), resulting in is a clearer basis for choosing and designing the types of educational activities to be implemented. This study provides evidence that a one size-fits-all program is not a solution and that not all consumers need to be educated in the same way.

Academically, this study contributes to enhancing our understanding and providing examples of the concrete uses of behavior-based segmentation. Although there are still many researchers and industry players who persist in using segmentation in terms of demographics, psychographics, and geography, this study confirms that these criteria for grouping are not the strongest. Behavior-based grouping produces homogeneous categorization in terms of problems or consumer needs. In this study, the behavior-based segmentation can be used as a reference for implementing fish consumption education activities, whose variables consist of (1) obstacles in the customer journey, (2) childhood

experiences, and (3) cooking skills. The recommended SBCC program thus becomes more relevant to the problems and targets.

From a managerial point of view, this study can be the basis for the implementation of relevant community education to promote fish adoption. The study suggests that, in selecting the target audience, educational activities can be seen from the level of difficulty in adopting fish consumption. The results showed that, of the four segments identified, some were more resistant to consuming fish, while others were easier to persuade. To ensure that resources in educational activities are not wasted, they should be prioritized towards the consumer segment that is the easiest to persuade, namely, the consumer segment that already has a habit of eating fish and is good at cooking it. If there are instead high levels of funding available, then educational activities should be designed for the most difficult segment, namely, consumers who are not used to eating fish and are not good at cooking it.

In accordance with the SBCC approach, there was clarity about the relevant variables related to the characteristics of each segment and its problems. Through this segmentation, an integrative consumer typology was produced as the basis for fish consumption communication education activities in order to overcome barriers to fish adoption. This will make it easier for designers of fish consumption education campaigns to identify problems in the target segment with this systematic integrative typology.

For future research, an area that can be developed is understanding consumer behavior around out-of-home fish consumption. When fish is no longer have to be cooked at home, there are no more obstacles around cooking, but there are other factors that remain. Understanding consumer attitudes and behavior in a restaurant or online culinary experience is essential. Combination of in-home and out-of-home fish consumption research will enrich each other and provide a holistic solution.

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